

CLAIMS:

1. A method of cleaning hole diggers and spot cultivators comprising:

moving a hole digger or a spot cultivator having at least one digging or tilling shaft and having at least one cleaning blade positioned close to the shaft while the shaft is being lifted or rolled out of the soil with a mud and/or a debris achieved thereto,

cleaning the mud and / or debris from said at least one digging or tilling shaft with said at least one cleaning blade;

maintaining said at least cleaning blade above the ground after the at least one digging or tilling shaft is lowered to dig the soil;

controlling the place of the at least one cleaning blade to be close to the at least one digging or tilling shaft to clean it from mud and/or debris while being lifted or rolled out of the soil, and when the at least one digging or tilling shaft is lowered to dig the soil, moving said at least one cleaning blade away from said digging or tilling shaft, lift and maintain said at least cleaning blade above the soil.

2. A method of cleaning spot cultivators comprising:

moving the spot cultivator having at least one tilling shaft which is rotatable about a longitudinal axis thereof and having at least one tilling element extending from said at least one tilling shaft and rotating with said shaft,

covering said at least one tilling shaft in axial direction below the at least one tilling element with a sleeve to prevent the accumulation of mud or debris on the said shaft,

wherein said sleeve is non rotating relatively to the at least one tilling shaft.

3. A method of cleaning hole diggers and spot cultivators comprising:

moving a hole digger or a spot cultivator having at least one digging or tilling shaft including at least one cutting blade at its digging end, and having (i) at least one tilling blade or (ii) an auger flight, positioned inward of said at least one cutting blade, and

rotating said at least one cutting blade in the opposite direction to the rotation direction of said at least one tilling blade or said auger flight, to cut the debris and prevent or minimize accumulation of debris or mud on said blades.

4. A traveling rolling digger for sequential hole drilling or for producing sequential cultivated spots in soil, the traveling rolling digger comprising:

at least one drilling shaft which is rotatable by a drive mechanism about a longitudinal shaft axis and having a rotating soil penetrating edge;
said at least one drilling shaft being mounted to roll about a horizontal shaft in a soil penetrating plane while said horizontal shaft moves in a direction of travel of the traveling rolling digger, whereby said at least one rotating drilling shaft enters the soil at an entry angle and digs into the soil while the horizontal shaft moves in said direction of travel and the drilling shaft continuously changes its angle relative to the soil from the entry angle to a vertical position, then to backward angle and exits the soil with mud and/or debris adhering thereto,

at least one cleaning blade for cleaning said at least one hole digger or spot cultivator, after said at least one hole digger or spot cultivator exits the soil, said at least one cleaning blade cleans the mud and / or debris whereby said digger is ready for digging the next hole / or spot, and

means to move said at least one cleaning blade into contact with said mud and / or debris after said at least one hole digger or spot cultivator exit the soil, and to move said at least one cleaning blade out of contact with said at least one hole digger or spot cultivator before it starts to dig the next hole or spot.

5. The traveling rolling digger of claim 4, wherein the at least one cleaning blade is mounted on a main gearbox of rolling digger by a pivot arm.

6. The traveling rolling digger of claim 4, said means comprising a depth-gage wheel or sledge said wheel is running on the ground surface at the rear side of the gearbox, and said wheel or sledge is mounted to the main gearbox by another pivot arm, and wherein said gage wheel or sledge is moving forward and pushing the at least one stationary cleaning blade to the rotating digging shaft.

7. The traveling rolling digger of claim 6, wherein two pivot arms are linked in such a way that the cleaning blade is pulled backwards and maintained above the ground when the digging shaft enters the soil.

8. The traveling rolling digger of claim 4, wherein said means to move comprising a mechanism for changing the at least one cleaning blade positions and to push the at least one cleaning blade to the digger in its upward position and to lift it above the ground in the digging position, said mechanism comprising a counterweight and pivot arms and is mounted at the side of the rolling gearbox of the machine and rolls with it.

9. The traveling rolling digger of claim 8, wherein the counterweight is mounted on at least one pivoted arm, which lets it fall downward whenever the gearbox rolls around its horizontal axes which rolls the digger shaft upward after digging the hole.

10. The traveling rolling digger of claim 9, wherein the at least one pivot arm of the counterweight is linked to the at least one pivot stationary arm of the at least one cleaning blade so that it lifts the arm and the blades above the ground in the digging position of the digger and in the upper position of the digger the counterweight pushes the arm and the cleaning blade(s) inward to the rotating digger whereby the digger is being cleaned after each hole and is ready to dig the next hole.
11. The traveling rolling digger of claim 9, wherein to clean an auger-digger, the at least one cleaning blade being slidable along its pivoted arm and as the cleaning blades enter between the auger's flights, they are being pushed by the flights to their ends sliding along the pivoted arm.
12. The traveling rolling digger of claim 11, wherein the cleaning blade(s) with their arms are pushed out of the cleaned auger flights by a cam rotating with the auger.
13. The traveling rolling digger of claim 9, wherein to clean an auger-digger, the at least one cleaning blade being slidably along its pivoted arm pushing a rod against a spring, and as the cleaning blades enter between the auger's flights, they are being pushed by the flights to their ends, and wherein the rod pushes and slides along a curved rail, said curved rail is mounted on the arm of the counterweight and lifts the counterweight upward, which results in pulling the blades with their arms out of the auger flights, and wherein the spring slides back the at least one cleaning blade and the rod to its starting cleaning position as the mass moves downward.

14. A traveling rolling digger for producing sequential cultivated spots in soil, the traveling rolling digger comprising:

at least one drilling shaft at least one tilling blade positioned toward the end of said shaft and beings rotatable by a drive mechanism about a longitudinal shaft axis and having a rotating soil penetrating edge;

said at least one drilling shaft being mounted to roll about a horizontal shaft in a soil penetrating plane while said horizontal shaft moves in a direction of travel of the traveling rolling digger, whereby said at least one rotating drilling shaft enters the soil at an entry angle and digs into the soil while the horizontal shaft moves in said direction of travel and the drilling shaft continuously changes its angle relative to the soil from the entry angle to a vertical position, then to backward angle and exits the soil with mud and/or debris adhering thereto, wherein

said at least one drilling rotating shaft is covered by a non-axially rotating covering sleeve one end of said covering sleeve is mounted on a main gearbox of the traveling rolling digger and the other end of said sleeve is maunted inward to, whereby the cultivator shaft and blades rotate and cultivate the soil while the sleeves prevent the build-up of mud and debris around the shafts above the blades.

15. A traveling rolling digger for sequential hole drilling or for producing sequential cultivated spots in soil, the traveling rolling digger comprising:

a hole digger or a spot cultivator having at least one digging or tilling shaft including at least one cutting blade at its digging end, and having (i) at least one tilling blade or (ii) an auger flight, positioned inward of said at least one cutting blade, and

a hole digger or a spot cultivator having at least one digging or tilling shaft including at least one cutting blade at its digging end, and having (i) at least one tilling blade or (ii) an auger flight, positioned inward of said at least one cutting blade, and said at least one cutting blade being rotate in the opposite direction to the rotation direction of said at least one tilling blade or said auger flight, to cut the debris and prevent or minimize accumulation of debris or mud on said blades and the shaft between them.